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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,218	12/22/2003	Timothy J. Dupuis	SIL.P0069	7652

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EXAMINER	
NGUYEN, DUC M	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,218	DUPUIS, TIMOTHY J.	
	Examiner	Art Unit	
	Duc M. Nguyen	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-47 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-47 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the information disclosure statements submitted on 2/14/05, 8/29/05 and 8/31/05 have been considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC э 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims **1-3, 16** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Bell** (US 5,642,075).

Regarding claim **1**, **Bell** discloses an RF apparatus formed using an integrated circuit (see col. 2, lines 23-37), comprising

- An amplifier circuitry formed using the integrated circuit (see Fig. 1 and col. 2, lines 23-37) and
- circuitry for generating a power ramp profile to control the output power of the RF power amplifier (see Fig. 1, wherein the ramp generator would read on the ramp profile).

Although **Bell** does not specifically disclose the amplifier is the power amplifier, one skilled in the art would recognize that an power amplifier would work equally well with Bell's teaching. Therefore, the claimed limitation regarding the power amplifier is made obvious by Bell.

Regarding claim **2,** it is clear that logical circuits in Figs. 6A, 6B of Bell are digital interfaces (see Figs. 6A, 6B).

Regarding claim **3,** it is clear that the digital interface would inherently comprise serial interfaces.

Regarding claim **16,** Bell discloses a digital to analog converter circuit (17) formed using the integrated circuit for generating a power control signal based on generated ramp profiles (see Fig. 1, ref. 17).

4. Claims **1-14, 16-27, 38-47** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Lee** (US 2003/0152056) in view of **Lin** (US 2004/0038701).

Regarding claim **1**, **Lee** discloses an RF apparatus formed using an integrated circuit (see Fig. 3B), comprising

- an power amplifier circuitry formed using the integrated circuit (see [0045] regarding "on-chip" limitation which implies an integrated circuit as well) and
- circuitry for generating a power control signal to control the output power of the RF power amplifier (see [0049]).

Although Lee is silent on a ramp profile, it is clear that the power control signal in Lee would obviously be based on a ramp profile as disclosed by Lin (see [0004], 0005]). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the above teaching Lin to Lee for providing a ramp profile as, so that power control based on a ramp profile according to a transmission condition could be selected for controlling amplifier gain, for further improving the performance of the AGC.

Regarding claims **2-3,** it is clear that Lee would disclose the digital interface comprises serial interfaces as claimed (see Fig. 3A, [0059]).

Regarding claims **4-6**, since **Lin** discloses a ramp profile for temperature gain control (see [0004]), this implicitly require a temperature sensor for measurement. Therefore, Lin would disclose one or more sensor and one or more ramp profile based on information from the sensor. Since controlling amplifier based on temperature information is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the above teaching Lin to Lee for providing a temperature sensor and a ramp profile based on temperature information as claimed, for stabilizing the gain control caused by temperature changes.

Regarding claim 7, since Lin also discloses a ramp profile for battery voltage (see [0004]), it would have been obvious to one skilled in the art at the time the invention was made to further incorporate the above teaching Lin to Lee for providing a voltage sensor and a ramp profile based on voltage information as claimed, for stabilizing the gain control caused by voltage level changes.

Regarding claim 8, since using an external control signal for controlling amplifier based on transmission mode (analog mode or digital mode) is known in the art (Official Notice), and since Lin also discloses a plurality of stored ramp profiles for selecting a ramp profile based on transmission conditions such as temperature, voltage of a battery, and transmission frequency (see [0004]), it would have been obvious to one skilled in the art at the time the invention was made to further modify Lin and Lee for providing an external control signal to control the amplifier based on transmission mode or transmission frequency (i.e, transmission frequency for

analog mode and transmission frequency for digital mode are different), and in combination with information from one or more sensors as well, for further improving the performance of the AGC.

Regarding claims 9-10, since Lin also discloses a processor (see Fig. 1 or 3), which may be a DSP (see [0006]) for controlling amplifier gain, it would have been obvious to one skilled in the art at the time the invention was made to further incorporate the above teaching Lin to Lee for providing a DSP to control the amplifier gain as well, so that a plurality of ram profiles could be generated by the DSP for controlling amplifier gain, for further improving the performance of the AGC. By doing so, the DSP in view of Lee would be formed using the integrated circuit.

Regarding claims 11-12, the external control signal is rejected for the same reason as set forth in claim 8 above.

Regarding claim 13, it is clear that Lee in view of Lin would teach a serial interface using the integrated circuit for downloading ramp profiles (see Lin, [0018]) onto the integrated circuit (see Lee, Fig. 3A, [0053]).

Regarding claim 14, it would have been obvious to one skilled in the art that the timing control unit 506 in Fig. 5 of Lee would provide a clock signal for the DSP in order to synchronize operations of the DSP and other I/O interfaces.

Regarding claim 16, Lin discloses a DAC as claimed (see Fig. 1, ref. 114)

Regarding claim 17, it is clear that Lee in view of Lin would teach the RF apparatus comprises memory formed using the integrated circuit, wherein the memory stores a plurality of ramp profiles for controlling the output power of the power amplifier.

Regarding claim 18, Lin discloses a plurality of stored ramp profiles and a selection as claimed (see [0018]).

Regarding claim 19, the received power control signal is interpreted as an external control signal and is rejected the same reason as set forth in claim 8 above.

Regarding claims 20-22, the claims are rejected the same reason as set forth in claims 4-6 above.

Regarding claim 23, the claim is rejected the same reason as set forth in claim 8 above.

Regarding claim 24, the claim is rejected the same reason as set forth in claim 18 above.

Regarding claim 25, Lin discloses a DAC as claimed (see Fig. 1, ref. 114).

Regarding claims 26-27, the DSP is rejected for the same reason as set forth in claims 9-10 above.

Regarding claim 38, the claim is rejected the same reason as set forth in claim 1 above, wherein the "on-chip" amplifier would read on the "first integrated circuit", the "WLAN transceiving integrated circuit" for controlling amplifier power would read on the "second integrated circuit" (see [045], [0049]).

Regarding claims 39-40, the claims are rejected the same reason as set forth in claim 38 above. In addition, since the use of either GaAs substrate or silicon substrate for amplifiers is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to further modify Lee for providing substrates as claimed, for utilizing advantages of each substrate such as cost and/or performance quality.

Regarding claim 41, the claim is rejected the same reason as set forth in claim 38 above. In addition, it would have been obvious to use a printed circuit board as claimed, for utilizing advantages of the printed circuit board such as easy interface connection.

Regarding claim 42, the claim is rejected the same reason as set forth in claim 38 above. In addition, it would have been obvious to use a substrate as claimed, for utilizing advantages of the substrate such as low power dissipation.

As to claims 43-47, Lin would disclose sensors, DSP, ram profiles and DAC for the same reason as set forth in claims 4-8, 16 above (see also Fig. 1 and [0018]).

5. Claims **15, 28** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Lee** in view of **Lin** and further in view of **Yu et al** (US 5,365,190).

As to claims 15, 28, the claim is rejected the same reason as set forth in claim 14 above. However, Lee fails to disclose the clock signal is generated by dividing the RF input signal. However, Yu discloses an RF device wherein the clock signal is generated by dividing the RF input signal. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide Yu's teaching to Lee, to generate the clock signal by dividing the RF input signal as well, for cost saving.

6. Claims **29-37** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Lee** in view of **Lin** and further in view of **Gunzelmann et al** (US 2004/0097250).

As to claim 29, the claim is rejected the same reason as set forth in claim 18 above. In addition, since Lee discloses a baseband section (see Fig. 4A), Lin discloses a DSP for

controlling amplifier power, and since utilizing a DSP at a baseband controller to control power of the amplifier is known in the art as disclosed by Gunzelmann (see Fig. 1 and [0043], [0068]), it would have been obvious to one skilled in the art at the time the invention was made to use Gunzelmann's teaching to integrate the DSP in Lin at the baseband section in Lee as well, so that the digital characteristics of the DSP circuit and the baseband section circuit can be efficiently formed in a singe integrated circuit, for cost and size reduction.

As to claims 30-31, Gunzelmann discloses the digital interface comprises serial interfaces as claimed (see [0061]-[0063]).

As to claims 32-37, Lin would disclose sensors, DSP, ram profiles and DAC for the same reason as set forth in claims 4-8, 16 above (see also Fig. 1 and [0018]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gronemeyer (US 2004/0162102), Serial radio frequency to baseband interface with programmable clock.

Molnar et al (US 2002/0142741), Low power digital interface.

Galpin (US 4,360,787), Digitally controlled wide ranch AGC.

Jensen (US 5,159,283), Power amplifier.

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-4177.

Duc M. Nguyen, P.E.

Mar 28, 2006